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Article

Metaphors of Nature and Economic Development: Critical Education for Sustainable Business

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Abstract: Neoliberal discourse often conceptualizes nature in relation to its market utility and economic development. This article will address the role of metaphors in shaping neoliberal discourse in business education. The aim of this article is to reveal reasoning patterns about environmental problems and economic development in students of sustainable business minor. The case study described in this article involves business students at The Hague University in The Netherlands. This case study aimed to explore a shift in student understanding of environmental problems and economic development before and after the intervention. The results suggest that critical curriculum can inform students about the alternative conceptions as well as instruct them about potential solutions to the sustainability challenges. The article culminates with the argument that without goal-oriented education for sustainability; neoliberal education may not permit transcendence from unsustainable practices.

Keywords: business education; circular economy; education for sustainable development (ESD); metaphors; neoliberalism

1. Introduction

Global capitalism has placed education at the forefront of national competitiveness, with education policies primarily designed to serve the needs of the market [1]. Neoliberal discourse reflected in education places business competencies as the driver of progress [2]. Neoliberal discourse as defined in this article, privileges economic development, including sustainable development in a sense that it

supports (literally makes sustainable) that very economic development, which keeps the environment in orbit with economics at the center [3]. Hursh and Henderson [4] asserted that neoliberalism elevates the market and profit above considerations of environmental sustainability. While perpetuation of economic development is not necessarily an explicit application of the term sustainable development as defined by the Brundtland report published in 1987, many critics have noted that sustainable development rhetoric has produced a number of economics-related metaphors. Within this discourse, metaphors that define “nature” or “environment” are often circumscribed as commodities, resulting in valuing nature only for its instrumental utility [5,6]. This circumscription by metaphors provides a good opportunity to study the social construction of sustainability issues [7]. At question is the deep (yet often unspoken) reliance of education on economy, and the other way around, in addressing sustainability [8]. Foster [9] argues that education for sustainable development (ESD) employs closely related metaphors of “stewardship” and “natural capital” as the most commonsensical way of relating to environment, with the natural capital metaphor becoming key to the discourse of sustainable development.

In the words of Reid and Scott [10], the metaphor has become a key component of the conceptual traffic employed in environmental education (EE). Whether it is based on the value of natural capital to ecological economics—the earth as a garden to be cultivated—such (root) metaphors can exert a powerful influence on our thinking and practice in environmental education and its research. The co-evolution of economy and environment [8] has not gone unnoticed by education researchers and practitioners who have increasingly reflected on the inadequacies of the framework of neoliberalism for environmental education [11–15].

The aim of this article is to reveal the reasoning patterns about environmental problems and economic development, as well as address curriculum design in education for sustainable development (ESD). The case study of perceptions “nature” by the students of International Business Management Studies (IBMS) at The Hague University of Applied Science in The Netherlands will be discussed with the special focus on metaphors. Consequently, the article will reflect upon the use and meaning of nature metaphors by students and discuss its implications for ESD. The rationale for doing this is based on the assumption that since language and discourse are crucial dimensions of EE and ESD [16] metaphors play particularly important role in educational practice [17]. Also, this research is stimulated by Jickling’s [18] assertion that is the role of environmental educators to “tell good stories”, and thus the use of language and metaphors are important for examining the aims of education and the content of the curriculum.

George Lakoff [19], a cognitive scientist and linguist, defined metaphors as the main mechanism through which we comprehend abstract concepts and perform abstract reasoning. In education, the metaphors allow us to test our conceptions and discourses by promising to make the expected strange as much as the strange uncannily familiar [10]. Metaphors can serve as the first step to transforming a not-yet well-understood emotion into a consistent story [20] that involves the process of social construction of meaning as well as emotional experience [21].

Partially in response to the idea that our world is linguistically and socially mediated, some educators and researchers of EE/ESD discuss sustainability in terms of “openness” and “pluralism” [22–25]. These scholars often assume that sustainability is socially constructed, and that it should be represented as an issue open to discussion and contestation rather than a fixed truth [26].

Others argue that some sustainability frameworks are more effective than others and refusal or inability to privilege some models over others does not forward the objective of sustainability [12,27]. Critical scholars link neoliberalism to sustainable development discourse and dispute whether the neoliberalism is adequate in addressing sustainability challenges such as climate change [28]. Identifying key obstacles to sustainability, such as environmentally damaging modes of production and consumption and population growth is recognized to be a pre-requisite of any discussion on sustainability [29]. This implies that rather than just encouraging plural discussions, lecturers need to address key causes and discuss best solutions to consumption and population issues, as well as develop clear guidelines for education for sustainability. As will be explained in this article, the author subscribes to the latter view of education for sustainability and argues that some approaches to sustainability offer better practical solutions.

The following section will address how neoliberalism contrasts with the critical conception of sustainable development and then turn to the use of metaphors through an exemplary case study of a critical course.

2. Neoliberalism, Economic Development and Sustainable Development

Neoliberalism can be analyzed through an approach that combines critical theory and critical geography, or “historical geographic materialism” [30]. Crouch [31] reflects on neoliberalism’s resistance to alternative movements that might have potentially disrupted it and simultaneously its resilience in financial crises which makes it resilient. In the words of Davies and Bansel [32], neoliberalism both competes with other discourses and also cannibalizes them in such a way that neoliberalism itself appears more desirable, or more innocent than it is. One of the central features of neoliberalism, discussed in this article, is the belief in the importance of economic growth and open markets.

An educational landscape that has been shaped by neoliberal reforms that promote the imposition of market models has also reinforced the notions of consumer choice. In doing so, educational institutions employ metaphors of freedom and choice that are mapped onto discourses of the labour market, rendering education as a site and technology for the production of mobile and flexible workers [33]. The neoliberal policies promote global “common sense” [34] embracing economic growth and new technologies, simultaneously marginalizing ecological concerns [35,36].

One of the consequences of neoliberal discourse is the belief that the market mechanisms will correct environmental problems focusing attention on consumer choice and lifestyles. The idea of self-regulated systems has been used by liberal and capitalist libertarians to downplay the need of political intervention. Furthermore, neoliberal discourse was blamed for negating the deep ecology perspectives [37], radicalizing environmental activism or animal rights movement [38], and deconstructing the intrinsic value of nature in favor of its instrumental market utility [5]. By contrast, some scholars have argued that sustainability should be based on ethical arguments about the intrinsic rather than economic value of nature [39–42]. John Huckle [43] has argued that if social empowerment is the key to sustainability, progressive education needs to balance the interests of nature and future generations alongside current human interests, and include more radical frameworks. Similarly, David Jones [44] has argued that universities are well-suited as places for restoration of students’ affinity with the

natural environment. This will be discussed below in connection to the students' response to the case study below viewing the film *If A Tree Falls* [45]. As such educational intervention discussed below needs to be seen both as a product of neoliberal system—as it occurs within neoliberal society and within institutions embedded in neoliberal values—and as a critical reflection upon this very education. Neoliberal education increasingly depends on corporate sponsorship [46]. It focuses on didactic teaching and narrowly defined accountability measures [47] which values learning in terms of its contribution to economic growth [48].

By dominating the discourse regarding decision-making, neoliberalism is presented as both the inevitable evolution of capitalism and as a technical and apolitical response to economic and political issues, largely marginalizing alternative conceptions [4]. Within this discourse, ethical considerations of non-human species favored by many traditional societies [18,49,50] are marginalized, as are the communities whose views differ from the mainstream neoliberalism. Apple [51] outlines the principal strategies involved in labelling of culturally and economically disadvantaged communities by shifting responsibility for their marginalization to both teachers and these communities themselves, as will be discussed below.

3. Nature, ESD and Metaphors

Monetary valuation of nature (the so-called economic capture approach) is often presented as an effective means of ensuring environmental protection in order to provide natural resources for human use [52]. The economic capture proponents argue that humans have to embrace a hybrid of wild nature and human management and not bemoan what she calls the “imaginary” wilderness [53]. According to this view, we must replace our notions of a pristine wilderness with the rambunctious garden planet, saturated in metaphors of cornucopian abundance provided, served, or yielded by nature, thus providing us an opportunity to work with industry for the betterment of nature [54]. Implicitly, this position supports the redundancy of “useless” species and the necessity to recognize the futility of wanting to preserve all biodiversity [55]. According to this logic, considerations of the economic value of the harvest cannot be marred by misplaced guilt based on naïve romanticism or considerations of ecological justice. In this context, human progress towards sustainability can be seen as a kind of journey from the messy debris of the industrial revolution to the clean and abundant future of ecological modernization [56].

Translated into education, particularly in the business context which this article will focus on, Milne *et al.* [57] suggest that in constructing “sustainability as a journey”, purveyors of corporate rhetoric can avoid becoming embroiled in debates about a desirable future and sustainable states of affairs. In fact, the corporate journey metaphor appears to seriously engage with elements of the discourse around sustainable development, but at the same time, paradoxically, may serve to further reinforce business-as-usual as the journey is never ending. According to Audebrand [58] the war metaphor which still guides strategic management theory, research, and education and is still used by sustainable development leaders. This war metaphor suggests a heroic struggle with abstract ideals and underplays the role of the real “enemy”, the neoliberal industrial capitalism.

Those who support preservation of nature for its own sake, see the terms “natural resources” or “ecosystem services” as metaphorical “discursive incarceration of the living world” [59] (p. 145). As

Gough [60] has argued, the economic metaphor of “natural capital” is a powerful explanatory, exploratory and motivational tool used for organizing directed learning as sense-making for negotiating the world. The metaphor of natural capital sees that the natural world has performing functions similar to those of economic capital and impedes progress towards genuine sustainability [61]. Commodification of nature privileges one (neoliberal) discourse over many others, therefore excluding the “voices in the conversation of humankind that we should learn to listen to” [62]. While it is possible that market-based mechanisms can contribute to environmental protection and restoration, this can be done only if they are part of a more comprehensive framework that accounts for the natural environment’s unquantifiable value [63]. In education, this means that the “metaphysics of mastery” [64] need to be overcome in order to enable education based on recognition of inherent moral and aesthetic value in nature to flourish [65]. In the following section, we shall inquire about the metaphor use of students enrolled in a sustainable business course before and after educational intervention that problematizes certain aspects of neoliberal discourse. This educational intervention is intended to reinforce the efficiency of education *for* environment [66].

Dale and Robertson [67] have noted that “educational improvements” and societal progress toward specified ends is not straightforward but mediated and shaped through particular “logics of intervention”. This logic specifies through what mechanisms education may be delivered to bring about the desired improvements, for example by using the curriculum change to bring about wider social change.

4. Description of the Courses

The case study was conducted at The Hague University of Applied Science (HHS). HHS is a professional institution that issues Bachelor’s degrees in vocation-oriented disciplines, ranging from business to medicine, with 42 full-time undergraduate degrees, 21 part-time (nine taught in English) and 10 dual Bachelor’s courses. Founded in 1987, HHS has expanded to four campuses and is made up of 14 academies. Almost half of the 21,000 students studies in the economic domain, which includes the Communication Studies and Higher Professional Education in Law programmes. On 31 December 2013, HHS had 1947 members of staff with an employment contract [68].

The case study from this university involved the sample of 20 international students of higher education aged 20 and 24 years old. The students were all enrolled in a Sustainable Business minor, an elective course consisting of five modules given to second year students of IBMS. The minor consisted of five modules, taught by three lecturers and coordinated by the author, including Introduction to Sustainable Business (Intro SB); Politics, Business and Environment (PB&E); Corporate Social Responsibility and Business Ethics (CSR); Global Supply Chain (GSC); and Guest Speakers and company visits module.

The critical courses used some of the literature related to criticism of sustainable development, particularly in a sense of sustaining economic development. Students were shown the documentary film *Schooling the World* [49], which equates education with neo-colonial practices in the context of Western-style school in the northern Indian Himalayas. The film’s commentators, mostly prominent anthropologists and Indian intellectuals, discuss the role of schools in the destruction of traditional sustainable agricultural and ecological knowledge. Provocatively, the commentators postulate that education supported by international development agencies can be seen as a calculated indoctrination

into the neoliberal system that erases traditional ways of relating to local environment in favor of the “market mentality”. Another film used was *If A Tree Falls* [45], about the history of the Earth Liberation Front (ELF), the radical environmental organization, with a discussion as to the motives of the arrested activists who were branded dangerous terrorists.

Some overarching themes in all these modules included critical stance toward capitalist neoliberal ideology, particularly the cult of economic growth, and the current unsustainable cycles of production and consumption and their effects on environment; anthropocentric bias in treating nature as a resource, as well as discussion of alternatives. These alternatives are discussed from both from cultural and ideological perspectives (including indigenous views of nature, productive labour, and human quest in general), as well as alternatives to the current “take, make and waste” industrial production system.

Similar to Webster’s [69] description of the course on the Circular Economy, modeled after ecological cycles, PB&E’s subjects involved the critique of conventional tenants of business sustainability, usually defined in terms of eco-efficiency, in favor of a more radical conception. The circular economy frameworks discussed in class reaches beyond the aim of minimizing the damage (as the destructive system should not be made efficient), but eliminating it all together. The educational program on circular economy contrasted with an older mechanical worldview that modelled the economy as a linear “take-make-and-dump” process with “only a crude and partial feedback device ‘the market’”, and a one-sided materialistic view of the rational consumer [69]. In education, such models discussing consumption were occasionally used, for example described by Savageau [70] who conducted an educational audit using cost-effective strategy to enable students to assess their own resource consumption and waste generation, laying the groundwork for behavioral change based on self-reflection. PB&E course was instructed by both deep ecology and more “practical” industrial ecology insights. This course was also designed to focus on the role of political power and corporate ideology that can be both destructive and extremely helpful in advancing these alternative sustainability agendas. While this article does not allow for a detailed discussion of literature involved in the courses, the central tenants of business sustainability thought in this minor involved frameworks that carry a promise of a more radical transformation of both society and production systems. These involve the so-called Cradle to Cradle (C2C) and circular economy frameworks. Basically, these frameworks are based on the idea that systematic change of the entire supply chain from linear (takes, make and dump) cycle of production to circular (in which natural or technological cycles are maintained and no unproductive waste is produced) is necessary. These frameworks draw inspiration from both natural cycles and from culturally diverse systems that allowed people across the world to build and produce materials that were basically sustainable before the industrial revolution took place. This course involved some of the literature used in the Introduction of this article, with *Cradle to Cradle: Remaking the Way We Make Things* by McDonough and Braungart [71] as the textbook, and case studies developed by Ellen MacArthur Foundation. The reading assignments and films were accompanied by in-class discussions and written essays, some of which are described below.

The guest speakers included green investment bankers; professionals from the renewable energy companies (wind and solar); employees of large environmental non-governmental organizations (ENGO’s) such as the Earth Carter, a representative from the Dutch Party for Animals, and green investment bankers.

5. Methods

The conversations with students were held between February and December 2012 and then repeated between September and December 2013, with three cohorts of minor students as the study spanned two semesters in two years. In total, there were 179 students who have attended the minor in this period, of whom 12 have not received credits for it as they quit one or more modules of the minor. Within the framework of an explorative qualitative study, this case study used a convenience purposive sample. The minor program is unique within the main program focused on finance, marketing and branding. The minor could be described as going with the grain of a wider course of study, as business sustainability was seen at the time as part of required “business competencies”, but simultaneously standing out from the run of the students’ experience at the institution in as the minor made students critical of many tenants of mainstream business sustainability, including its neoliberal underpinnings.

Students were asked to participate in this study at the beginning of the course, thus prior to the 12-week program involving all five modules. The reasoning behind the knowledge claims (types, standing, *etc.*) advanced via such research design is based on the idea described in the Introduction, that both diagnostic of the present ideology and potential for changed can be partially measured and understood through linguistic analysis. The initial opinions of students were used as a zero-measurement (benchmark, “pre-intervention” opinions). Subsequent research has focused on progression of students’ attitudes due to “intervention”—the 12-week course titled Politics, Business, Environment (PB&E) targeted at developing students’ awareness of the complexity and possible paradoxes of sustainable development [72].

For the zero-measurement, the students were first asked to complete and discuss the “Anthropocentric Attitudes toward the Sustainable Development (EAATSD) scale” [73]. Consequently, students were asked to reflect upon the following six questions: What do you think is being measured by EAATSD scale? How do you relate to biodiversity (nature)? What do you think about (sustainable) development? What is neoliberalism? How is sustainable development related to neoliberalism? What do you think is the relationship between biodiversity (nature) and sustainable development? The lecturer attempted to refrain from commenting, rather encouraging students to develop a discussion among themselves on the basis of these questions. After the 12-week PB&E course, the students were again asked to reflect on the same questions as were used for the zero-measurement. Discourse analysis [74] was used to analyze the in-class discussions that ensued. For this article, a small selection of students’ written reactions to assignments asking them to reflect on viewing the films is used for analysis. The reader needs to remember that these reactions represent but a small fraction of five various assignments given in five modules of the minor.

Qualitative data analysis had a number of limitations. Situating myself in relation to authoring both the curriculum and approach, in reflecting upon an anthropological focus in which neoliberalism is discussed as a “culture” of capitalist and industrial societies, and my role as a program coordinator, was sometimes conflictual. The conflict also stemmed from openly declaring my support for deep ecology perspective on environment, and my attempt to encourage open and critical learning, in which all perspectives, also those conflicting with my own, were to be given a stage. The scope of this article does not allow the detailed presentation of didactic techniques and challenges involved in teaching this

critical course. Instead, this article is intended to indicate the direction which critical ESD courses can take. Sections below present condensed results, with a short discussion of metaphors, commonly used phrases or expressions used per each of six questions. The participants deployed metaphors mostly in conversations and written assignments, with some of the expressions intertwined with non-metaphorical utterances on the topic.

5.1. Results Zero-Measurement

The students could not tell that the EAATSD scale measured anthropocentrism and ecocentrism. Students felt at ease giving their opinion about the items on issues that they were used to thinking about, such as “One of the worst things about overpopulation is that many natural areas are getting destroyed for development”. They were more ambiguous about what they felt were more “unconventional” or “controversial” statements, such as “Animal rights are as important as women rights, minority rights, gay rights and other equality issues”. As one of the students reflected, while the first category of items is opinion-based, the second category of items felt like “a forced choice” and was therefore “uncomfortable”. The students sensed that the scale was measuring some “different things”, with one student venturing a guess that “maybe it was... first, about humans, and then... about nature”.

In response to the question about biodiversity, students spoke of a number overlapping issues and concerns, most often referring to “protecting nature”, “environmental problems”, “challenges” and objectives of “sustaining natural resources”. The major set of metaphors was related to “vulnerability” which could be “managed”—overcoming obstacles, addressing problems, and finding solutions. Others spoke of biodiversity as service provider, as in the case of “plants from which new medicines can be made”. Many felt that biodiversity was vulnerable and needed protecting.

When asked to reflect upon the term “development”, many students have named “growth”, “progress”, “modernity” and “ways forward”, as well as “evolution” in a more biological context. When asked to reflect upon the term “economic development” a few students offered “helping people to overcome poverty” and “raising living standards”. Students did name a few ways in which economic development can be achieved—through “building roads”, “improving travel”, “helping to develop.... efficient agriculture”, “building hospitals”, and “building schools”.

In reflecting upon the relationship between biodiversity (nature) and sustainable development, the students came up with the terms that closely relate nature to natural resources and natural capital. Biodiversity was often described in terms of service (as in “servicing objectives”), or enabling (as in “enabling progress to continue”). Congruence in social and environmental objectives was emphasized, particularly through the concept of “provision” created by “natural resources” with biodiversity implicitly described as “service”.

The students tended to view SD as indisputably the “good thing”. Some students were already aware of the Brundtland report (1987) definition interpreting its aim as a combination of social and environmental objectives in regard to “future generations”. The students readily evoked the triple bottom line and the objectives of simultaneously achieving economic prosperity, equality and ecological protection. The metaphors associated with balance (as in “balancing three objectives”) were

often used. Furthermore, students saw the combination of ecological and human interests as logical and the focus on future human generations as normative.

5.2. After the Course

After the course, the students have recognized that the EAATSD scale was measuring anthropocentric and ecocentric orientation toward nature, correctly identifying survey items that corresponded to these positions. The students were able to defend their own positions in a more coherent manner, engaging in discussion of inherent values, and ecological justice. Students' identification of nature has not changed much since the initial discussion, however referring to nature more students evoked values, beauty, and what one student called "flowers that can live without us water them". In regard to sustainable development, the students felt that there were some essential problems in combining social, economic and ecological objectives. The metaphors accentuated difficulties, paradoxes and challenges. The students indicated the need not to re-evaluate fundamental terms underlying sustainability.

Students felt that there was a connection between neoliberalism and development enterprise, but they were not precisely able to pin down what this relationship was. They observed the hierarchy between development that "happens in poor countries" and neoliberalism that "comes from more powerful countries". Neoliberalism was seen as either "inspiration", or "controller" of development policies. As one student aptly put it, neoliberalism "appears to be democratic, but is really top-down" because it "dictates poor countries what to do". Another student added: "It is about freedom... but like in a Wild West". Instead of metaphors of unity, progress and challenges, expressions of doubt and ethical concerns have increased. As one Chinese female student reflected at the end of the course:

First, I thought I knew how to help solve environmental problems through doing the right thing... I started to wonder what the right thing is... How can nature be allowed to blossom if we all want a piece of it? How can we make things that would not upset the balance [of nature or of humans and nature]? I'm afraid I am left with more questions that when I have started [this course]. Maybe it's a good thing...

The film *Schooling the World* left a deep impression. The students felt ambiguous about the objectives of development enterprise and considered the possibility that development may be "imposed by rich nations upon others", as one student astutely put it. Development was now seen as at best ambiguous and at worst "problematic" ("while working for some, this type of economic development can be problematic"), "encroaching" ("development [educational programs] encroach upon the native [indigenous, traditional] systems"), "manipulating" ("the word development manipulates perception of the world"), and even "attacking" ("economic development attacks traditional cultures").

Some students remained skeptical about what they now saw was a "critical approach to sustainable development and neoliberalism", with a male Dutch student observing that such a criticism can lead to "going backwards" or even "abandoning hope". "In the modern society", this student commented, "It would be difficult to address poverty... or environmental problems without... global politics that is more like traditional cultures". However, he added: "I do agree that we should think about environment differently though... I don't know whether everybody agrees?" Another male Dutch student has reflected skeptically: "It seems that [the film makers] are also trying to indoctrinate us... about the fact that others are trying to indoctrinate those poor people". Pakistani-Dutch male student

observed:

“This film also presents a way of... seeing the world... in the film-makers’ own interpretation... It’s also a form of indoctrination, being against capitalism and so....”

A German male student has reflected:

In my opinion the movie gives a great new view of point on the topic. It makes clear that help is not always good for the people who receive it. The surroundings and circumstances are very important to be considered every time help is conducted. The example of the movie shows that most people don’t even recognize their “bad” influence on the culture. They basically think that they do a good thing for them because they apply their own value system to them but totally forget the big cultural difference there is. The movie also showed that companies who support schooling projects just do it for themselves to survive in the close future and the growing market. That was a very new and unknown fact for me.

However, the same student (and a few others) also felt that the film was prejudiced and reflected on the commentator’s bias:

In general I have to say that the movie is just showing of the bad effects of theses schooling projects. It should provide information about successful students in the modern society as well because globalization always has a positive and a negative effect. Maybe it is the wrong way applied in the current situation but a better solution then just let them be in their own world untouched by modern society is not a good solution for indigenous people as well. All in all I liked the idea of the movie but I dislike the mono sided way of showing the current situation.

The film *If A Tree Falls* has led to some passionate reflections. A Dutch male student reflected:

This movie clearly portrays how people with the right intent at heart can feel that sending a peaceful message clearly does not have impact in modern society today. Therefore, turning to a more provocative manner of gaining attention and for a certain amount of time even immobilize destructive companies. However, what I personally find more impactful is the fact that the vague description of laws today after 9/11 can make anyone an enemy of state. We are heading towards a police state, if we aren’t at that point already. While the actions of Daniel McGowan and his fellow environmentalists can in no way be deemed rightful, the fact that there are people so outraged by the lack of environmental governance and protection that they are willing to give up their lives in order to pursue what they feel is the right thing to do is something to be admired.

6. Reflection

Generally, zero-measurement results show that students perceive “nature” in mostly instrumental terms reflecting on the dominant perception, equating ecological and socio-economic interests and seeing ecological interests as largely subservient to social and economic ones. The dominance of the neoliberal approach to nature is manifested through normative metaphors of “natural resources”, “ecosystem services” and “natural capital”. Consequent measurement shows that the students were

more aware of paradoxes of sustainable development and of limitations of the instrumental uses of nature. The initial reaction of students is similar to that reported by Sternäng and Lundholm [75] in the case of Chinese schools, in which students' discussions focused exclusively on economic growth and social welfare, believing that environmental problems are inevitable, that nature is a logical provider of resources, and economic development is necessary in order to sustain and even improve nature. The discussions before the course indicated that students' perceptions of "nature" were similar to the Dominant Western Worldview (DWW), summarized by environmental sociologists Catton and Dunlap [76]. DWW tends to privilege socio-economic over ecological interests, after the educational intervention, students were more aware of contradictory relationship between human and ecological objectives.

In relation to the film *If A Tree Falls*, we recall Huckle's [43] argument that if social empowerment is the key to sustainability, progressive education needs to include more radical frameworks. If nothing else, confronting students with the story of radical activists has opened up discussion about the limits of what is socially acceptable, and what is radical, and how neoliberalism can be seen both as a normative influence and as a crushing counter-force to alternative movements.

In relation to the film *Schooling the World*, we recall Apple's [51] principal strategies involved in labelling of culturally and economically disadvantaged communities. Rather than seeing local or indigenous communities as undeveloped and backward, students were able to recognize that perhaps their marginalization is the result of calculated neoliberal education, rather than their own cultural "backwardness". The above is just a sampler of the vastness of what lies under "nature", "environment" or "ecology" and that should draw the attention of educators and researchers. Attending to the meaning of sustainable development, environment and nature cannot be easily enclosed, or delineated through either discourse or writing.

Yet, some significant tendencies manifested through language can be discerned. Also, this case study and particularly student responses to viewing the film show is that, as Berryman and Sauvé [16] reflect, we need to attend to the many languages and discourses of environmental education. Attending to the meaning of nature, environment and ecology within the framework proposed by commentators of *Schooling the World*, convenes into a maelstrom with a long, profound and varied history in different cultures. Personal narratives told by the indigenous activists advocate a more humble engagement with place-based cultures that already contain the sort of long-standing alternatives to neoliberalism that can lead to a more peaceful and natural ecology [14,17,18]. Mainstream development approaches can be seen as largely continuous with forces of Western globalization, in the manner in which they problematize a deficit model of developing countries' poverty. The fact that predominantly Western business students were able to appreciate that shows both their ability to recognize culturally variable ways of relating to alternative modes of living and to nature, as well as their ability to transcend neoliberal mode of thinking. Without sounding too naïve or optimistic, we can also not that while viewing the film might have made students more critical of their own education, but we should not over-estimate the power of documentaries or critical thinking to actually form personal decision-making and future convictions.

Admittedly, this case can also be viewed as an example of "affective indoctrination" in changing (some) of the students' thinking. Instead, this article was intended to exemplify how critical discussion of neoliberalism and nature can be implemented in teaching practice. Avoiding a robust discussion of whether all formal education could be seen as a form of indoctrination we can reflect that if we assume

that neoliberal education may also indoctrinate students [77] a critical course can indoctrinate *against* neoliberalism and *toward* practical sustainability solutions.

The consequent course given to students was directed toward the concepts of Cradle to Cradle and circular economy, aimed to channel students' doubt and frustration into a more productive way of thinking about implications of broader conception of nature for business practice. As opposed to a more open neoliberal (in a sense of plural) way of looking at sustainability, these frameworks provide a more instructive way of achieving sustainability.

The Cradle to Cradle uses the metaphor of a cherry tree to describe how the tree's production of "waste" (leaves, berries) does not spoil or deplete its environment but actually benefits the formation of new earth, and provides food for other species—thus quite different from the metaphor of a production factory—an industrial "cradle to grave" system. It is through such metaphors that we come to comprehend the extent of nature's translation into ESD.

Although the scale of this article does not permit a detailed discussion, see the literature on the Cradle to Cradle or circular economy in relationship to EE in Webster [69] and Kopnina and Blewitt [78], as well as the work of Ellen MacArthur Foundation with schools in order to emphasize technical and critical literacy. Webster [69] argues for an ecological worldview based on deep ecology and tied to whole system thinking and complex systems science as a priority for ESD. As enlightened businesses strive to adopt waste-free technologies based on mutually beneficial (rather than depleting or exploitive) cycles, they align corporate activities with ESD [2]. All teachers who educate for sustainability should have a critical grasp of the structures and processes shaping the development of the societies in which they teach [42] but also of effect that the society has on its environment including critical frameworks such as deep ecology or animal rights. Educators could do more—as the present case illustrates—to support ecocentric perspectives within established business programs.

The fragments of discussion above indicate that the students are not passive recipients of neoliberal messages, but active participants in the process of contestation and negotiation. The results of zero-measurement show that individuals can also question neoliberal rationality by making use of the resources that neoliberal and other discourses provide, within the discursive and material constraints that their environments allow. For example, students are able to see the films propagating against purported indoctrination of neoliberalism as being possibly biased themselves.

This suggests that the linguistic determinism (particularly represented by Sapir-Whorf hypothesis which states that the structure of a language restricts the ways in which its speakers conceptualize their world) and discussed by Bowers [77] and Lakoff [19] might not be as restrictive—in other words, a student's ability to reflect beyond the metaphors is present. They see metaphors as troves of the exploratory-creative thinking which enables us to inhabit paradox (the ecological niche of a reflexively conscious species). As Blewitt [79] has noted that ironically many of the authors work within the educational system they attack and wish to see reformed or overturned. This shows "there is still enough space for dissenting academics to be progenitors of alternatives, if they are courageous enough to act" [79] (p. 62).

In line with Jickling [48] and Wals [24] who identify the dangers of "Big Brother Sustainable Development" the author is wary of prescribing the predetermined—in this case neoliberal—vision of sustainability. Yet, since ESD as most other educational practices has elements of indoctrination [80], perhaps goal-oriented teaching is not so much endangering the democratic practice of education

(education for democracy itself is in itself instrumental) but is in danger of teaching students something that is particularly unhelpful in addressing sustainability concerns. Instead, students can be educated as active agents of change *for* sustainability [81]. In line with Bell [82], I agree that we need to look beyond economic metaphors to improve our understanding of the environment–human relationship. I also agree with Huckle [42] that there is a need to re-orientate systems of production, governance and education. Productive ways of such re-orientation include, ethically, non-anthropocentric perceptions of nature [18,64,65], and practically, ecologically benign production. Finally, I support Jones [44] in his suggestion for universities to serve as a place for restoration of students' affinity with the natural environment.

From the consequent measurement it emerges that the students can be helped to develop progressive thinking about sustainability, instructed by both ecological outlook and Cradle to Cradle frameworks. This indicates that unless we inform students about concrete sustainability solutions—some with much more potential to change the present “business as usual” pattern than others—we may fritter away our energy as educators and researchers in pluralistic conceptions (some contradictory) arguing that every solution is valid as long as we “tell good stories” [18]. What student reactions to the films demonstrate that provocative documentaries can promote change in perception of one's own biases, culture, and more generally, relationship with the environment and the broader issue of human development.

7. Conclusions

The aim of this article was to examine neoliberalism in relation to nature and to reveal the reasoning patterns about environmental problems and economic development. This article has addressed the ways in which neoliberalism promotes markets, resulting in valuing nature only for its instrumental value, and implications of this for ESD in the context of business education. This article discussed the use of metaphors used by students before and after educational intervention targeted at bringing critical awareness on the subjects of sustainable development and neoliberalism. The students' perceptions have shifted towards recognition (although not necessarily acceptance) of ecocentric position that sees nature not as a tradable property within neoliberal economy, but as having its own value. The students have also learned to recognize culturally variable ways of looking at sustainability. In line with Apple's [51] observation that economically disadvantaged communities are blamed for their own educational failures, it was observed that the students were able to discern that disadvantaged communities can actually offer leverage against the neoliberal values. The case study in this article also demonstrates that within the formal system of education, exemplified by this case study, students are capable of recognizing these strategies of marginalization—they can recognize ethnocentric (or culturally-centered) bias present in neoliberal societies—and are motivated to seek alternative models.

If all education is a form of indoctrination, the PB&E course can be seen as instrumental in propagating a critical view of neoliberalism and then implanting this critique into the minds of students. The case presented in this article can be also used as an example of how critical ability to recognize and engage in alternative discourses can be implemented in teaching practice. In this view, one of the key aims of environmental education should be bringing an anthropocentric view of nature into doubt, and dethroning neoliberalism as normative.

Consequent research into the use of metaphors both as markers of existing perceptions and possibly as didactic tools in teaching students about the value of nature could employ more positive models such as Cradle to Cradle and the circular economy, which could be applied both in business education and in general environmental education or ESD.

Conflicts of Interest

The author declares no conflict of interest.

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